

CLAIMS

What is claimed is:

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1. A rubber floor mat comprising:
a single vulcanized sheet of foam rubber having at least one protrusion integrated on at least one side of said sheet;
said foam rubber sheet having a dense rubber skin completely encompassing said sheet; and
wherein an outer portion of said protrusion has a thick dense rubber skin that is at least 15 microns thicker than said skin elsewhere on said foam rubber sheet.
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2. The rubber floor mat set forth in claim 1, wherein said sheet of foam rubber includes a plurality of protrusions integrated on one side of said sheet.
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3. The rubber floor mat set forth in claim 1, wherein said sheet of foam rubber includes a plurality of protrusions integrated on both sides of said sheet.
4. The rubber floor mat set forth in claim 1, wherein said dense rubber skin on said protrusion is between about 30-80 microns thick.
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5. The rubber floor mat set forth in claim 1, wherein said foam rubber is formed from a nitrile foam rubber compound.
6. The rubber floor mat set forth in claim 5, wherein said dense rubber skin formed on said outer

portion of said protrusion is between twice and ten times as thick as said skin formed about said entire outer layer of said mat.

7. The rubber floor mat set forth in claim 5, wherein said dense rubber skin formed on said outer portion of said protrusion is between approximately 40-80 microns thick, and said skin formed about said entire outer layer of said mat is between approximately 10-15 microns thick.

8. The rubber floor mat set forth in claim 1, further comprising at least one solid rubber reinforcing strip around outer peripheral edges of said rubber floor mat.

9. The rubber floor mat set forth in claim 1, further comprising a carpet pile secured to one side of said foam rubber sheet.

10. A method of forming a floor covering article having a cleated anti-creep surface on at least one side thereof, said method comprising the steps of:

providing a mold having at least one recess to form at least one protrusion on said floor covering article;

providing a temperature differential between a bottom portion of said recess and other portions of the mold, so that the bottom portion of said recess maintains a higher temperature than other portions of the mold;

placing an unvulcanized foam rubber compound onto said mold; and
vulcanizing said floor covering article.

11. The method set forth in claim 10, further including the step of placing and securing a carpet pile on one side of said floor covering article.

12. The method set forth in claim 10, wherein said mold includes a plurality of recesses.

13. The method set forth in claim 12, wherein said mold is formed from a conveyor belt that defines a series of holes therein to provide for formation of said protrusion, and wherein said conveyor belt passes over a heated platen during the vulcanization step.

14. The method set forth in claim 10, further comprising the step of perforating said floor covering article for creating a plurality of holes therein.

15. A cleated anti-creep floor covering article produced by the method of claim 10.

16. A cleated anti-creep floor carpet produced by the method of claim 11.

17. A cleated anti-creep floor covering article produced by the method of claim 12.

18. A cleated anti-creep floor covering article produced by the method of claim 13.

19. A cleated anti-creep floor covering article produced by the method of claim 14.

20. A rubber floor mat comprising:

a single vulcanized sheet of foam rubber having at least one protrusion integrated on at least one side of said sheet;

said foam rubber sheet having a dense rubber skin completely encompassing said sheet; and

wherein at least an outer portion of said protrusion has a thick dense rubber skin that is at least 40 microns thick.

21. The rubber floor mat set forth in claim 20, wherein said sheet of foam rubber includes a plurality of protrusions integrated on both sides of said sheet.

22. The rubber floor mat set forth in claim 20, wherein said dense rubber skin on said protrusion is between 40-80 microns thick.

23. A method of producing a cleated anti-creep floor mat with a mat producing apparatus comprising a rubber mat component with a mat producing apparatus comprising the steps of:

(a) providing a perforated substrate article, which is coated or comprised of a material which will not adhere to said rubber mat component after a vulcanization step, wherein said perforated substrate article is optionally separated from the metal platen of said apparatus by a cushioned platen liner;

(b) placing said rubber mat component on top of said perforated substrate article of step "a" and optionally placing thereon a fabric pile;

(c) transporting the rubber mat component/perforated substrate article composite to a vulcanization chamber; and

(d) vulcanizing said rubber mat component as it remains on top of the perforated substrate article, thereby forming cleats through the perforations of said perforated substrate article;

5 wherein said substrate article and said optional platen liner are comprised of or coated with materials which can withstand the temperatures and pressures associated with vulcanization.

24. The method of Claim 23 wherein said substrate article is made of fiberglass and coated with a coating which can withstand the high temperatures and pressures associated with rubber vulcanization and which will not appreciably adhere to molten rubber.

25. The method of Claim 24 wherein said coating is polyfluoroethylene.

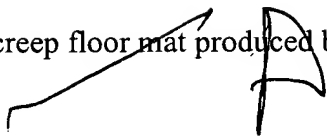
26. The method of Claim 23 wherein said platen liner is either comprised of silicon or is coated with silicon.

27. A cleated anti-creep floor mat produced by the method of Claim 23.

28. A cleated anti-creep floor mat produced by the method of Claim 24.

29. A cleated anti-creep floor mat produced by the method of Claim 25.

30. A cleated anti-creep floor mat produced by the method of Claim 26.



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